

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-8 (Canceled).

Claim 9 (Previously Presented): A pressure sensor comprising:

an optical wave guide;

a first reflecting element formed in a portion of the optical wave guide, the portion being submitted to pressure;

means for lateral support of the portion of optical wave guide, wherein the portion of optical wave guide is submitted to a compression prestress with a small value compared with a measurement range of the sensor;

a housing; and

a membrane that is subjected to pressure and closes the housing,

wherein the sensor acts in compression;

wherein the portion of the optical wave guide is placed in the housing and comprises first and second ends that are fixed to the membrane and to the housing respectively, and

wherein the means for lateral support comprises means for preventing buckling of the portion of optical wave guide when compressed.

Claim 10 (Previously Presented): A sensor according to claim 9, wherein the means for preventing buckling of the portion of optical wave guide comprise a tube, which is placed in the housing, and surrounds the portion of optical wave guide and comprises a first end that is at a spacing from the membrane and a second end that is fixed to the housing, and rings that are arranged one after the other in the tube between the housing and the membrane, and

that are spaced from each other by elastic elements, the portion of optical wave guide passing through the rings, and the portion of optical wave guide being free to slide in the rings.

Claim 11 (Previously Presented): A sensor according to claim 10, wherein the elastic elements comprise elastic toric spacers.

Claim 12 (Previously Presented): A sensor according to claim 10, wherein the elastic elements are made from an elastic material with a low coefficient of friction.

Claim 13 (Currently Amended): A sensor according to claim ~~[[13]]~~ 12, wherein the elastic material is cellular polytetrafluorethylene.

Claim 14 (Previously Presented): A sensor according to claim 9, wherein the means for preventing buckling of the portion of optical wave guide comprises a single ring that is fixed and integral with the housing and that guides the portion of optical wave guide over an entire length of the sensor.

Claim 15 (Previously Presented): A sensor according to claim 9, wherein the means for preventing buckling of the portion of optical wave guide comprises rigid washers arranged one after the other in the housing, along the portion of optical wave guide, the portion of optical wave guide passing through the rigid washers, together with elastic elements that are arranged one after the other in the housing, between the housing and the membrane, alternate with the rigid washers, and that are integral with the rigid washers.

Claim 16 (Previously Presented): A sensor according to claim 15, wherein the elastic elements form a single block of elastic material that traps the portion of optical wave guide.

Claim 17 (New): A sensor according to claim 9 further comprising a gap between the means for lateral support and the membrane.

Claim 18 (New): A sensor according to claim 17, wherein the means for lateral support is fixed to an axial end of the housing opposite the membrane and extends along the optical wave guide toward the membrane.

Claim 19 (New): A pressure sensor comprising:

an optical wave guide;

a first reflecting element formed in a portion of the optical wave guide, the portion configured to be submitted to pressure;

a lateral support configured to support the portion of optical wave guide, wherein the portion of optical wave guide is submitted to a compression prestress with a value less than a measurement range of the sensor;

a housing; and

a membrane configured to be subjected to pressure and that closes the housing,

wherein the sensor is configured to sense a compressive force;

wherein the portion of the optical wave guide is disposed in the housing and comprises first and second ends that are fixed to the membrane and to the housing respectively, and

wherein the lateral support is configured to preventing buckling of the portion of optical wave guide when compressed.

Claim 20 (New): A sensor according to claim 19, wherein the lateral support comprises a tube, which is placed in the housing, and surrounds the portion of optical wave guide and comprises a first end that is at a spaced from the membrane and a second end that is fixed to the housing, and rings that are arranged one after the other in the tube between the housing and the membrane, and that are spaced from each other by elastic elements, the portion of optical wave guide passing through the rings, and the portion of optical wave guide being free to slide in the rings.

Claim 21 (New): A sensor according to claim 20, wherein the elastic elements comprise elastic toric spacers.

Claim 22 (New): A sensor according to claim 20, wherein the elastic elements are made from an elastic material with a low coefficient of friction.

Claim 23 (New): A sensor according to claim 22, wherein the elastic material is cellular polytetrafluorethylene.

Claim 24 (New): A sensor according to claim 19, wherein the lateral support comprises a single ring that is fixed and integral with the housing and that guides the portion of optical wave guide over an entire length of the sensor.

Claim 25 (New): A sensor according to claim 19, wherein the lateral support comprises rigid washers arranged one after the other in the housing, along the portion of optical wave guide, the portion of optical wave guide passing through the rigid washers,

together with elastic elements that are arranged one after the other in the housing, between the housing and the membrane, alternate with the rigid washers, and that are integral with the rigid washers.

Claim 26 (New): A sensor according to claim 25, wherein the elastic elements form a single block of elastic material that traps the portion of optical wave guide.

Claim 27 (New): A sensor according to claim 19 further comprising a gap between the lateral support and the membrane.

Claim 28 (New): A sensor according to claim 27, wherein the lateral support is fixed to an axial end of the housing opposite the membrane and extends along the optical wave guide toward the membrane.

Claim 29 (New): A sensor according to claim 9 further comprising a gap between the housing and the membrane.